CLAIMS:

1. A process for producing a monoalkylated aromatic compound comprising the step of contacting a polyalkylated aromatic compound with an alkylatable aromatic compound under at least partial liquid phase conditions and in the presence of a transalkylation catalyst to produce a monoalkylated aromatic compound, wherein the transalkylation catalyst comprises a mixture of at least two different crystalline molecular sieves, wherein each of said molecular sieves is selected from zeolite beta, zeolite Y, mordenite and a material having an X-ray diffraction pattern including d-spacing maxima at 12.4±0.25, 6.9±0.15, 3.57±0.07 and 3.42±0.07 Angstrom.

2. The process of claim 1, wherein the transalkylation catalyst comprises a mixture of at least:
   (i) a first crystalline molecular sieve having a X-ray diffraction pattern including d-spacing maxima at 12.4±0.25, 6.9±0.15, 3.57±0.07 and 3.42±0.07 Angstrom; and
   (ii) a second crystalline molecular sieve different from the first molecular sieve and selected from zeolite beta, zeolite Y and mordenite.

3. The process of claim 2, wherein the first crystalline molecular sieve is selected from MCM-22, MCM-36, MCM-49 and MCM-56.

4. The process of claim 2, wherein the second crystalline molecular sieve comprises TEA-mordenite having an average crystal size of less than 0.5 micron.

5. The process of claim 2, wherein the transalkylation catalyst comprises about 15 to about 50% by weight of first crystalline molecular sieve and about 15 to about 50% by weight of the second crystalline molecular sieve, based on the total weight of molecular sieve material in the catalyst.

6. The process of claim 1, wherein the transalkylation catalyst is produced by coextrusion of said mixture of at least two different crystalline molecular sieves.

7. The process of claim 1, wherein the alkyl groups of the polyalkylated aromatic compound have 1 to 5 carbon atoms.

8. The process of claim 1, wherein the polyalkylated aromatic compound is polyisopropylbenzene and the alkylatable aromatic compound is benzene.

9. The process of claim 1, wherein said contacting step is conducted at a temperature of 100 to 260°C, a pressure of to 10 to 50 barg (1100 to 5100 kPa), and a weight hourly space velocity of 1 to 10 on total feed, and benzene/polyalkylated benzene weight ratio 1:1 to 6:1.

10. A process for producing a monoalkylated aromatic compound comprising the steps of:

(a) contacting an alkylatable aromatic compound with an alkylating agent in the presence of an alkylation catalyst to provide a product comprising said monoalkylated aromatic compound and a polyalkylated aromatic compound, and then

(b) contacting the polyalkylated aromatic compound from step (a) with said alkylatable aromatic compound under at least partial liquid phase conditions and in the presence of a transalkylation catalyst to produce a monoalkylated aromatic compound, wherein the transalkylation catalyst comprises a mixture of at least two different crystalline molecular sieves, wherein each of said molecular sieves is selected from zeolite beta, zeolite Y, mordenite and a material having an X-ray diffraction pattern including d-spacing maxima at 12.4±0.25, 6.9±0.15, 3.57±0.07 and 3.42±0.07 Angstrom.

11. The process of claim 10, wherein the alkylation step (a) is conducted under at least partial liquid phase conditions.

12. The process of claim 10, wherein the alkylating agent includes an alkylating aliphatic group having 1 to 5 carbon atoms.

13. The process of claim 10, wherein the alkylating agent is propylene and the alkylatable aromatic compound is benzene.

14. The process of claim 10, wherein the alkylation catalyst of step (a) is selected from MCM-22, MCM-49, MCM-56 and zeolite beta.

15. The process of claim 10, wherein the transalkylation catalyst comprises a mixture of at least:

(i) a first crystalline molecular sieve having a X-ray diffraction pattern including d-spacing maxima at 12.4±0.25, 6.9±0.15, 3.57±0.07 and 3.42±0.07 Angstrom and

(ii) a second crystalline molecular sieve different from the first molecular sieve and selected from zeolite beta, zeolite Y and mordenite.

16. The process of claim 15, wherein the first crystalline molecular sieve of the transalkylation catalyst of step (b) is selected from MCM-22, MCM-36, MCM-49 and MCM-56.

17. The process of claim 15, wherein the second crystalline molecular sieve of the transalkylation catalyst of step (b) comprises TEA-mordenite having an average crystal size of less than 0.5 micron.

18. The process of claim 15, wherein the transalkylation catalyst of step (b) comprises about 15 to about 50% by weight of first crystalline molecular sieve and about 15 to about 50% by weight of the second crystalline molecular sieve, based on the total weight of molecular sieve material in the catalyst.

19. A process for producing cumene comprising the steps of:

(a) contacting benzene with propylene under at least partial liquid phase conditions and in presence of an alkylation catalyst to provide a product comprising cumene and polyisopropylbenzenes, and then

(b) contacting the polyisopropylbenzenes from step (a) with benzene under at least partial liquid phase conditions and in the presence of a transalkylation catalyst to produce further cumene, wherein the transalkylation catalyst comprises a mixture of at least two different crystalline molecular sieves, wherein each of said molecular sieves is selected from zeolite beta, zeolite Y, mordenite and a material having an X-ray diffraction pattern including d-spacing maxima at 12.4±0.25, 6.9±0.15, 3.57±0.07 and 3.42±0.07 Angstrom.